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09/974,601	10/09/2001	Andrew Dove	5150-62801	7061

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EXAMINER

MCCARTNEY, LINZY T

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/974,601

Applicant(s)

DOVE ET AL.

Examiner

Linzy McCartney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-26 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-7, 9, 11, 12 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,724,074 to Chainani et al. (Chainani) in view of Beland et al., "Lego Mindstorms The Structure of an Engineering (R)evolution" (Beland) further in view of Gindling et al., "LEGOsheets: A Rule-Based Programming, Simulation and Manipulation Environment for the LEGO Programmable Brick" (Gindling).

a. Referring to claim 1, Chainani discloses converting the graphical program to an executable that can be executed by the portable computing device (column 11, lines 21-36); transferring the executable to the portable computing device (column 11, lines 39-43); and executing the executable on the portable computing device (column 11, lines 45-50). Chainani does not explicitly disclose displaying one or more user interface elements on a display of the portable computing device. Beland discloses that it is known to include display user interface elements on a portable computing device (page 20, paragraph 2) and Gindling discloses displaying the aforementioned user interface elements in the graphical user interface (page 176, column 2, paragraph 3 – page 177, column 1, paragraph 2). At the time the invention was made it would have been obvious to one of ordinary skill in the art to modify Chainani by displaying one or more user interface elements on a display of the portable computing device as taught by

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Beland and Gindling. The suggestion/motivation for doing so would have been because it would provide an ideal method for teaching children how to program (Gindling, page 172, column 2, paragraph 2) and it would allow children to view sensor values in the field (Beland, page 20, paragraph 2)

b. Referring to claim 2, Chainani discloses wherein the graphical program is initially represented as a plurality of data structures that specify the operation of the graphical program (Fig. 7; column 8, lines 53-56); wherein said converting the graphical program to an executable that can be executed by the portable computing device comprises converting the graphical program to executable code that can be executed by the portable computing device (column 11, lines 21-36).

c. Referring to claim 4, Chainani discloses creating the graphical program prior to said converting (Fig. 5).

d. Referring to claim 5, Chainani discloses wherein the graphical program comprises a plurality of interconnected nodes which visually indicate functionality of the graphical program (Fig. 7).

e. Referring to claim 6, Chainani discloses wherein the executable includes functionality that corresponds to functionality of the graphical program; wherein said executing the executable includes performing the functionality of the graphical program (column 5, lines 64-67; column 11, lines 21-50; Fig. 7).

f. Referring to claim 7, Chainani discloses examining the graphical program to determine said portions that cannot execute natively on the portable computing device; incorporating program instructions into the executable in response to said examining (column 11,

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lines 21-36); wherein said incorporated program instructions enable said portions to execute on the portable computing device (column 11, lines 47-50).

g. Referring to claim 9, Chainani discloses incorporating program instructions into the executable to enable handling said one or more data types of the portable computing device (column 8, lines 57-59; column 11, lines 21-50).

h. Referring to claim 11, Chainani discloses wherein the portable computing device does not include a graphical program execution engine (column 6, line 58 – column 7, line 13).

i. Referring to claim 12, Chainani discloses examining the graphical program to determine portions that require the functionality of the software execution engine; incorporating program instructions into the executable in response to said examining (column 11, lines 21-36), wherein said incorporated program instructions enable said portions to execute on the portable computing device without use of the software execution engine (column 11, lines 47-50).

k. Referring to claim 17, Chainani discloses a processor storing program instructions a memory medium that stores the graphical program (column 4, line 64 – column 5, line 39); a portable computing device (Fig. 2); converting the graphical program to an executable that can be executed by the portable computing device (column 11, lines 21-36); transfer the executable to the portable computing device (column 11, lines 39-45); wherein the portable computing device is operable to execute the executable (column 11, lines 45-51) Chainani does not explicitly disclose wherein the portable computing device includes a display, wherein the display is operable to display one or more user elements. Beland discloses that it is known to include display user interface elements on a portable computing device (page 20, paragraph 2) and

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Gindling discloses displaying the aforementioned user interface elements in the graphical user interface (page 176, column 2, paragraph 3 – page 177, column 1, paragraph 2).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chainani in view of Beleand further in view of Gindling applied to claims 1 and 17 above further in view of U.S. Patent No. 5,638,299 to Miller.

a. Referring to claim 3, Chainani does not explicitly disclose wherein the portable computing device comprises a personal digital assistant. Miller discloses wherein the wherein the portable computing device comprises a personal digital assistant (Fig. 1, Abstract). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to further modify the method of Chainani by using a personal digital assistant as taught by Miller. The suggestion/motivation for doing so would have been because it is easy to use and relatively inexpensive and would provide data acquisition functions (Miller, column 1, lines 57-67).

b. Referring to claim 18, Chainani does not explicitly disclose wherein the portable computing device comprises a personal digital assistant. Miller discloses wherein the wherein the portable computing device comprises a personal digital assistant (Fig. 1, Abstract).

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3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chainani in view of Beleand further in view of Gindling as applied to claim 1 above further in view of MathWorks, "Real-Time Workshop 4".

a. Referring to claim 10, Chainani does not explicitly disclose incorporating program instructions into the executable to enable performance of one or more math functions on the portable computing device. MathWorks discloses incorporating program instructions into the executable to enable performance of one or more math functions on the portable computing device (page 1, paragraph 1; page 3, lower right figure). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the method of Chainani by incorporating program instructions to enable math functions as taught by MathWorks. The suggestion/motivation for doing so would have been because it would speed up simulations. Provide intellectual property protection, and run on a wide range of prototyping targets (MathWorks, page 1, paragraph 1).

4. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chainani in view of Beleand further in view of Gindling as applied to claim 1 above in view of U.S. Patent No. 5,392,207 to Wilson et al. (Wilson).

a. Referring to claim 13, Chainani does not explicitly disclose wherein said executing the executable on the portable computing device includes invoking execution of at least one graphical program on the computer system. Wilson discloses executing the executable on the computing device includes invoking execution of at least one graphical

program on the computer system (column 3, lines 1-13). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of Chainani by invoking at least one graphical program on a computer system as taught by Wilson. The suggestion/motivation for doing so would have been because it would provide a programming aid useful for troubleshooting (Wilson, column 2, lines 39-43).

b. Referring to claim 14, Chainani does not explicitly disclose converting the graphical program to a text-based program and compiling the text-based program to produce the executable code that can be executed by the portable computing device. Wilson discloses converting the graphical program to a text-based program (column 8, lines 12-16) and compiling the text-based program to produce the executable code that can be executed by the portable computing device (column 8, lines 17-20).

c. Referring to claim 15, Chainani does not explicitly disclose displaying the execution information on a display device of a second computing device in response to said executing; wherein the second computing device is coupled to the portable computing device through one of a wired or wireless medium; wherein the execution information is useable in debugging the graphical program. Wilson discloses displaying the execution information on a display device of a second computing device in response to said executing (column 3, lines 1-13); wherein the second computing is coupled to the portable computing device through one of a wired or wireless medium (Fig. 1); wherein the execution information is useable in debugging the graphical program (column 9, lines 45-57).



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- d. Referring to claim 16, Chainani does not explicitly disclose receiving user input to the second computing device to debug the execution. Wilson discloses receiving user input to the second computing device to debug the execution (column 10, lines 6-8).
5. Claims 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chainani in view of Wilson further in view of Beleand further in view of Gindling.

a Referring to claim 22, Chainani discloses executing the graphical program on the portable computing device (column 11, lines 45-50) and displaying the block diagram on a display device of a second computing device, wherein the second computing device is coupled to the portable computing device through one a wired or wireless medium (Fig. 7; column 5, lines 50-53). Chainani does not explicitly disclose displaying execution information on the block diagram displayed on the display device in response to said executing the graphical program on the portable computing device, wherein the execution information is useable in debugging the graphical program or wherein the portable computing device includes a display, wherein the display is operable to display one or more user interface elements. Wilson discloses displaying execution information on the block diagram displayed on the display device in response to said executing the graphical program on the portable computing device, wherein the execution information is useable in debugging the graphical program (column 3, lines 1-3; column 9, lines 45-57 Beland discloses that it is known to include display user interface elements on a portable computing device (page 20, paragraph 2) and Gindling discloses displaying the aforementioned user interface elements in the graphical user interface (page 176, column 2, paragraph 3 – page 177, column 1, paragraph 2). At the time the invention was made it

would have been obvious to one of ordinary skill in the art to modify Chainani by displaying execution information on the block diagram displayed on the display device in response to said executing the graphical program on the portable computing device, wherein the execution information is useable in debugging the graphical program and displaying one or more user interface elements on a display of the portable computing device as taught by Wilson, Beland and Gindling. The suggestion/motivation for doing so would have been because it would provide a programming aid useful for troubleshooting (Wilson, column 2, lines 39-43), it would provide an ideal method for teaching children how to program (Gindling, page 172, column 2, paragraph 2), and it would allow children to view sensor values in the field (Beland, page 20, paragraph 2).

f. Referring to claim 23, Chainani discloses converting the graphical program to an executable that can be executed by the portable computing device prior to said executing the graphical program on the portable computing device (column 11, lines 21-36); and transferring the executable to the portable computing device (column 11, lines 39-45); wherein said executing the graphical program on the portable computing device comprises executing the executable on the portable computing device (column 11, lines 47-51).

h. Referring to claim 24, Chainani discloses wherein the second computing device comprises a desktop computer system (Fig. 1).

i. Referring to claim 25, Chainani does not explicitly disclose receiving user input to the second computing device to debug the graphical program. Wilson discloses

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receiving user input to the second computing device to debug the graphical program (column 10, lines 6-8).

j. Referring to claim 26, Chainani does not explicitly disclose wherein said debugging the graphical program comprises performing one or more of: setting break points in the graphical program; performing execution highlighting for the graphical program. Wilson discloses wherein said debugging the graphical program comprises performing one or more of: setting break points in the graphical program; performing execution highlighting for the graphical program (column 9, lines 58-66).

6. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over dSPACE, "Solutions for Control" (dSPACE).

a. Referring to claim 19, dSPACE discloses storing a first graphical program on a computing device, wherein the first graphical program is configured to invoke execution on a second graphical program (page 62, paragraph 3; page 63, Figure); storing the second graphical program on a second computing device; executing the first graphical program on the portable computing device; and invoking execution of the second graphical program on the second computing device in response to said executing (page 62, paragraph 3; page 63, Figure). dSPACE does not explicitly disclose a portable computing device. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of dSPACE to include a portable computing device, Official Notice taken. The suggestion/motivation for doing so would have been because it would reduce the size of the computing system and increase user mobility.

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b. Referring to claim 20, dSPACE does not explicitly disclose wherein the second computing device is coupled to the portable computing device through a wireless medium. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the method of dSPACE by coupling the devices using a wireless medium. The suggestion/motivation for doing so would have been because it would free the user from the constraints imposed by a wired connection.

c. Claim 21 is rejected with the rationale of the rejection of claim 19.

***Allowable Subject Matter***

7. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

8. Applicant's arguments filed 3/15/04 have been fully considered but they are not persuasive. Applicant argues that one of ordinary skill in the art at the time of the invention would have not found sufficient motivation to combine the teachings of Miller and Chainani because Miller is directed towards data acquisition while Chainani is directed towards toys. However, has noted in the Gindling and Beland references, it is known in the art to use toys for data acquisition (Gindling, page 176, column 2, paragraph 3- page 177, paragraph 3; Beland, page 20, paragraph 2). Regarding Applicant's argument that one of ordinary skill in the art at the time of the invention would have not found sufficient motivation to combine Mathworks with Chainani because it would be too difficult for children to use, Beland notes that it is known to use

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graphical versions of an interface to make it user friendly for children (page 17, paragraph 2).

Regarding the Applicant's argument that the dSPACE reference is not on a portable computing device, as noted in the Office Action it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a portable computer for a desktop computer because it would reduce the size of the computing system and increase user mobility and because the computing requirements stated in the reference were well within the capabilities of a portable computer. Regarding Applicant's assertion that dSPACE does not disclose "...the first graphical program is configured to invoke execution of a second graphical program..." the Examiner notes that dSPACE explicitly discloses the aforementioned limitation in the figure at the bottom of page 63 and page 62, paragraph 3. Regarding Applicant's contention that dSPACE does not disclose a plurality of interconnected nodes which visually indicate functionality of the graphical program, the aforementioned limitation has not been given patentable weight because the recitation occurs in the preamble.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Linzy McCartney** whose telephone number is **(703) 605-0745**. The examiner can normally be reached on Mon-Friday (8:00AM-5:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at **(703) 305-9798**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

ltm  
May 26, 2004

  
**MARK ZIMMERMAN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**